

Prevention of childhood obesity in India: Way forward

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Abstract

Childhood obesity is a burden in developed and developing countries. Overweight and obesity are caused by numerous social and environmental factors that influence people's food habit and physical activity. Role of primary or secondary prevention is the mainstay plan for controlling this epidemic. Various adaptable best practice models are available in the developed nations. However, further research needs to be done to examine the most effective strategies of intervention, prevention, and treatment of obesity in our setting. Through this paper, we would like to highlight best practices and potential interventions to reduce the burden of obesity in India.

Key words: Best practices, childhood obesity, prevention

INTRODUCTION

Childhood obesity, in developed countries has reached epidemic proportion and developing countries are not far behind. It has been estimated that worldwide over 22 million children under the age of 5 are obese, and one in 10 children is overweight.^[1,2] Studies reports the prevalence of childhood obesity to fluctuate in different countries, with the prevalence of overweight in Africa and Asia averaging well below 10% and in the Americas and Europe above 20%. The proportion of school-going children affected has almost doubled by 2010 compared with the most recently available surveys from the late 1990s up to 2003.^[2]

Limited evidences are available regarding burden of overweight and obesity among children in Indian scenario. A study conducted among 24,842 school children in south India showed that the proportion of overweight children

increased from 4.94% of the total students in 2003 to 6.57% in 2005 demonstrating the time trend of this rapidly growing epidemic.^[3] Socio-economic trends in childhood obesity in India are also emerging. A study from northern India reported a childhood obesity prevalence of 5.59% in the higher socio-economic strata when compared to 0.42% in the lower socio-economic strata.^[4] Another school based study in 2011 reported the prevalence of overweight and obesity in 8- and 18-year-old children, respectively, was 14.4% and 2.8% by International Obesity Task Force (IOTF) cutoffs, 14.5% and 4.8% by Center for Disease Control (CDC) cutoffs, and 18.5% and 5.3% by World Health Organization (WHO) cutoffs.^[5]

A variety of mechanisms participate in weight regulation and the development of obesity in children, including genetics, developmental influences ("metabolic programming", or epigenetics), and environmental factors. The relative importance of each of these mechanisms is the subject of ongoing research and probably varies considerably between individuals and populations. The rapidly changing dietary habits along with the adoption of sedentary lifestyle increases enormously the obesity-related noncommunicable diseases such as insulin resistance, type 2 diabetes mellitus, and metabolic syndrome. In developed countries, it is seen that greater social inequality is associated with increase chance of obesity contrary to developing countries.^[6] And

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once obesity is established, the role of primary prevention is of paramount importance with strategies of behavioral changes, diet control, and physical activity being the core interventions.^[7]

This review tries to highlight the good practices and lessons learned from developed countries in tackling childhood obesity.

DETERMINANTS OF CHILDHOOD OBESITY

In spite of extensive research over the past decades, the mechanisms by which people attain excessive body weight and adiposity are still only partially understood. Overweight and obesity are caused by numerous social and environmental factors that influence people's energy intake and physical activity.^[8,9]

Once an individual is overweight or obese, reversing the energy balance to restore a healthy weight is a significant challenge, particularly for children and young people who can have little direct control over food and activity choices. Key determinants of childhood obesity are however, unhealthy dietary habits, and reduced physical activity remain significant problems.

Lack of physical activity

Overindulgence in indoor leisure activities and entertainment (e.g., television viewing, internet, and computer games) alone or in combination with factors like unsafe neighborhoods for walking and other outdoor activities, lack of open spaces and playgrounds in schools and communities along with increasing pressure on children to perform in academics and reduced emphasis on sports, contribute to childhood obesity. Television viewing is perhaps the best established environmental influence on the development of obesity during childhood.^[10] The association between obesity and use of other media is somewhat weaker. Combining a clinical assessment of baseline activity levels and modifying environment to promote physical activity should be part of any preventive strategies.

Excess caloric intake

Due to the unrestricted access to energy-dense foods at various platforms like school cafeteria and school neighborhood combined with low knowledge about dietary components in school children, there is often increased caloric intake per body weight per day.^[11] The practice of overfeeding of low-birth-weight babies for catch up growth, if continued, also contributes to obesity later on.^[8]

Lifestyle related factors

Daily allowance (pocket money) to purchase lunch, easy availability of domestic help to take care of household

chores, commuting to school by bus or car instead of walking or bicycling, aggressive advertising by transnational fast-food and cola companies are some of the practices which predispose children to obesity.^[12]

Socio-cultural factors and urbanization

Overprotection and forced feeding by parents, false traditional beliefs about health and nutrition, low knowledge about nutrition in parents and caregivers also contribute to obesity. Again limited availability of open spaces and parks due to population expansion and illegal settlements with abundance of fast-food outlets and eating points increase the chance of the child becoming obese.^[8]

BEST PRACTICES FROM DEVELOPED NATIONS

All health care personnel unanimously agree that prevention is the key strategy for controlling the current epidemic of obesity.^[13] Prevention may include primary prevention of overweight or obesity itself, secondary prevention or avoidance of weight regains following weight loss, and prevention of further weight increases in obese individuals unable to lose weight. Various interventions were implemented in developed countries to reduce the burden of childhood obesity; few adaptable models are being discussed here.

New South Wales initiative in Australia

The New South Wales (NSW) state plan seeks to stop the growth in supported childhood obesity with the following aims:^[14]

- Restoring the energy balance for the NSW population, with a specific focus on children, young people, and their families;
- Reducing the factors that give rise to an "obesogenic" environment;
- Increasing community understanding and action around managing obesity risks; and
- Providing a platform for action through which Government can drive the change process in partnership with industry, the not-for-profit sector and communities.

Figure 1 shows the action points and desired behaviors at the community level to prevent emergence of overweight and obesity. At the "*Good for Kids, Good for Life Program*" is a large scale 5-year obesity prevention trial being run in the Hunter New England Area Health Service. The program seeks to prevent overweight and obesity in children in the region and to build evidence for policy and practice related to the prevention of childhood overweight and obesity in NSW. The *Good for Kids, Good for Life Program* interventions

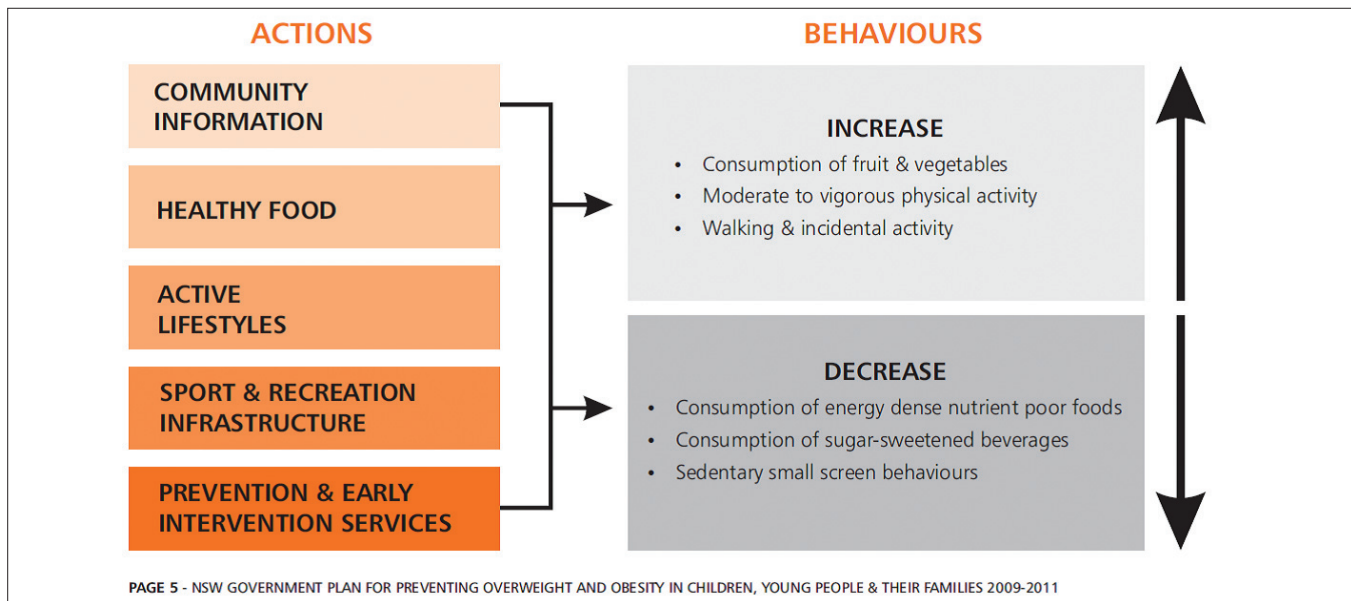


Figure 1: New South Wales Government plan for preventing overweight and obesity in children, young people and their families 2009–2011

focus on the six key areas of schools, childcare services, community organizations, health, media, and aboriginal communities. NSW health department plans to extend social marketing activities focusing on the five key consumer messages; be active 1 h each day; drink water; turn off the TV; eat more fruit and vegetables; and eat fewer snacks. This will provide contextual information about obesity causes and prevention strategies, and be targeted to key segments of the population.

“Pick a Tick Initiative” in Australia by National Heart Foundation

Nutrition experts, consumer advocacy groups, and food industry leaders are encouraging the development of simplified front-of-package nutritional labeling schemes that complement nutrition panels, but also allow consumers to quickly compare the content of nutrients of greatest public health significance (e.g., energy, total/saturated fat, sugar, sodium, and fiber). Food labeling and nutrition “signposts” such as logos that indicate that a food meets certain nutrition standards might help consumers make choices of healthy foods. An example is the “Pick the Tick” symbol program run by the National Heart Foundations in Australia and New Zealand.^[15] The “Pick the Tick” symbols made it easier for consumers to identify healthier food choices. Furthermore, in addition to the nutrition criteria, the products serve as “de-facto” standards of product formulation for the manufacturers.

“Healthy Weight, Healthy Lives: A cross-government strategy for England”

United Kingdom has initiated a comprehensive strategy on obesity prevention called as “Healthy Weight, Healthy

Lives: A cross-government strategy for England.”^[16] Based on the available evidence, the strategy highlights five key themes for tackling excess weight:

1. Children: Healthy growth and healthy weight – early prevention of weight problems to avoid the “conveyor-belt” effect into adulthood
2. Promoting healthier food choices – reducing the consumption of foods that are high in fat, sugar and salt and increasing the consumption of fruit and vegetables
3. Building physical activity into our lives – getting people moving as a normal part of their day
4. Creating incentives for better health – increasing the understanding and value people place on the long-term impact of decisions
5. Personalized support for overweight and obese individuals: Complementing preventive care with treatment for those who already have weight problems.

Though this intervention program; an “eat well plate” concept is promoted where all healthy individuals over the age of 5 years are encouraged to eat a healthy, balanced diet that is rich in fruits, vegetables, and starchy foods.

EPODE initiative in Europe

EPODE^[17] stands for *ensemble-prévenons-l'obésité-des-enfants* meaning “Together Let's Prevent Childhood Obesity” is a community initiative which was launched in 2004 in 10 towns in France and is an intervention for children aged 5–12 who are overweight or at risk of weight gain. EPODE methodology designed to involve all relevant local stakeholders in an integrated and concrete prevention program aimed at facilitating the adoption of healthier

lifestyles in the everyday life. The programs developed on the basis of the EPODE framework are long-term, aimed at changing the environment and thereby the unhealthy behaviors. The approach is “positive, concrete and stepwise” learning process with no stigmatization of any culture, food habits, overweight, and obesity.

The guidelines outline policy priority options and include a section on plans agreed at European level, as well as detailing the plans of 14 European countries: Austria, Denmark, Estonia, Finland, France, Germany, Iceland, Ireland, Italy, The Netherlands, Norway, Slovenia, Sweden, and United Kingdom.

Broadly to tackle obesity in European level five goals have been decided upon. Each goal has its own objectives and actions to be taken:

- a. Controlling sales of foods in public institutions to ensure that only healthy foods are sold in schools and preschools
- b. Controls on food and drinks advertising on TV, the Internet and in schools
- c. Mandatory nutritional information labeling that is clear and easy for the consumer to understand
- d. Common Agricultural Policy reform and subsidies on healthy foods, i.e., fruit and vegetables
- e. Improve training for health professionals so that they are able to recognize and diagnose obesity risks in infancy, childhood, and adolescence. It is also important that professionals are able to offer advice without appearing prejudiced or patronizing.

Canadian initiative to prevent childhood obesity

Childhood overweight and obesity has been rising steadily in Canada in recent decades^[18]. Between 1978 and 2004, the combined prevalence of overweight and obesity among those aged two to 17 increased from 15% to 26%. This framework for action is comprised of three integrated strategies:

- i. Making childhood overweight and obesity a collective priority for action for Ministers of Health and/or Health Promotion/Healthy Living, who will champion this issue and encourage shared leadership and joint and/or complementary action from government departments and other sectors of Canadian society.
- ii. Coordinating efforts on three key policy priorities:
 - Supportive environments: Making social and physical environments where children live, learn, and play more supportive of physical activity and healthy eating;
 - Early action: Identifying the risk of overweight and obesity in children and addressing it early; and
 - Nutritious foods: Looking at ways to increase the availability and accessibility of nutritious foods and

decrease the marketing of foods and beverages high in fat, sugar, and/or sodium to children.

- iii. Measuring and reporting on collective progress in reducing childhood overweight and obesity, learning from successful initiatives, and modifying approaches as appropriate.

White House Task Force on childhood obesity report

The childhood obesity epidemic^[19] in America is a national health crisis one in every three children (31.7%) ages 2–19 is overweight or obese. This report presents a series of 70 specific recommendations, summarizing them broadly, they include:

- Getting children a healthy start on life, with good prenatal care for their parents; support for breastfeeding; adherence to limits on “screen time;” and quality child care settings with nutritious food and ample opportunity for young children to be physically active
- Empowering parents and caregivers with simpler, more actionable messages about nutritional choices based on the latest Dietary Guidelines for Americans; improved labels on food and menus that provide clear information to help make healthy choices for children; reduced marketing of unhealthy products to children; and improved health care services, including BMI measurement for all children
- Providing healthy food in schools, through improvements in federally-supported school lunches and breakfasts; upgrading the nutritional quality of other foods sold in schools; and improving nutrition education and the overall school environment
- Improving access to healthy, affordable food, by eliminating “food deserts” in urban and rural America; lowering the relative prices of healthier foods; developing or reformulating food products to be healthier; and reducing the incidence of hunger, which has been linked to obesity
- Getting children more physically active, through quality physical education, recess, and other opportunities in and after school; addressing aspects of the “built environment” that make it difficult for children to walk or bike safely in their communities; and improving access to safe parks, playgrounds, and indoor and outdoor recreational facilities.

WHAT INDIA CAN LEARN FROM DEVELOPED NATIONS?

In India, we are still struggling with the burden of malnutrition but the issue of over-nutrition cannot be ignored. Effectively addressing this complex problem calls for a sustained, multi-sectoral response involving the public, private, and health professional and non-

governmental sectors. Timely action must be initiated to combat the rising epidemic of childhood obesity. There is considerable knowledge about the risk factors associated with childhood obesity research and scientific information on the causes and consequences of childhood obesity from developed nations as mentioned in this narrative review. India should also formulate a national policy and partner with the private sector to end the childhood obesity epidemic. Effective policies and tools to guide healthy eating and active living are within our grasp.^[9] Some of the specific recommendations are as follows.

Surveillance

- Periodic monitoring of nutritional and obesity status of children including adults:
 - To create a database for childhood obesity at various regions to start with and then may be at state level
 - Initiate community-based research to document burden of obesity and associated risk factor and monitor these trends over time.
 - Maintain a nationwide database on secular trends in obesity and associated comorbidities.

Health education

- For all children and their families, routine health care should include obesity-focused education
- Nutrition and physical advice through audio-visual media and culturally conducive methods
- Endorsement of healthy lifestyle by prominent people and local champions
- For children who are overweight or obese, a series of clinical counseling interventions in the primary care setting is suggested
- Educational materials are available from a variety of sources to facilitate the counseling. These materials have much in common and have not been directly compared; it is reasonable for providers to select materials with messaging that is best suited to their community.

Community mobilization

- Organization and participation in health walks and healthy food festivals
- Information about nutrition to parents (particularly mothers)
- Children-specific nutrition information and workshops for newly married women
- Safe walk/bicycle routes to school
- To establish a therapeutic relationship and enhance effectiveness, the communication and interventions should be supportive rather than blaming, and family-centered, rather than focused

on the child alone

- Long-term changes in behaviors that are related to obesity risk should be emphasized, rather than diets and exercise prescriptions, which tend to set short-term goals.

Early infancy and perinatal period

- Balanced nutrition to pregnant mothers
- Encourage exclusive breastfeeding
- Avoidance of catch-up obesity in children
- Maintenance of correct growth velocity under guidance of physicians
- Avoid excess nutrition to stunted children.

School-based interventions

- High importance on physical activity
- Making healthier choice available and banning un-healthy food in cafeteria, (sweetened beverages and energy-dense junk food). Teachers can play a vital role in this initiative
- Training of teachers regarding nutrition education
- Incorporation of more knowledge about nutrition and physical activity and nutrition related diseases in school curriculum.

Home-based interventions

- Key goals to address are the common diet-related problems encountered in children, set firm limits on television and other media early in the child's life, and establish habits of frequent physical activity
- TV/computer time to be restricted to maximum 2 h/day
- Mandatory 60 min of physical activity daily to be supervised by parents
- Restriction on eating out at weekends and restricting availability of junk foods at home.

Policy formulation

- Creation of national task force for obesity
- Decrease in taxes and prices of fruits and vegetables
- Proper Food labeling practices and quality monitoring
- More playgrounds, parks and walking and bicycle tracks
- Restriction on advertisement of commercial foods on television at prime time and during children's programs and ban on unfair nutrition claims for commercial products
- Encourage trans-national food companies to manufacture healthy snacks
- Prohibition of promotional gifts with junk foods
- Ban on monetary sponsorship of youth festivals by cola companies.

CONCLUSION

Effectively addressing the complex problem of childhood obesity calls for a sustained, multi-sectoral response involving the public, private, health professional and non-governmental sectors. This should also include various ministries joining hands together to promote healthy lifestyle and providing an enabling environment. The role of primary or secondary prevention is the mainstay plan for controlling this epidemic. These strategies can be initiated at home and in preschool institutions, schools or after-school care services. However, further research needs to be done to examine the most effective strategies of intervention, prevention, and treatment of obesity. These strategies should be culture specific, ethnical, and should consider the socio-economic aspects of the targeting population. Preventing obesity in a child's earliest years (and even before birth, by healthy habits during pregnancy) confers a lifetime of health benefits. And it's the most promising path for turning around the global epidemic.

“The Bottom Line: It's never too early to start preventing obesity”

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